



Carbaryl Monitoring Report

Environmental Monitoring and Pest Management Branch
Department of Pesticide Regulation
830 K Street
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Newsletter Issue III

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Environmental Monitoring of Carbaryl in Glassy-Winged Sharpshooter Treatment Areas in Fresno County

This newsletter provides brief summary of monitoring results of carbaryl (7® Insecticide) in various environmental samples collected by the Department of Pesticide Regulation (DPR) during the glassy-winged sharpshooter control program in the cities of Fresno and Clovis, Fresno County.

The Fresno County Departments of Agriculture, under the guidance of the California Department of Food and Agriculture, has been treating glassy-winged sharpshooter infested properties with carbaryl. DPR monitors selected treatments in urban residential areas for carbaryl residues. Samples were taken for spray mixture in tank, air, foliage, surface water, fish and garden fruits and vegetables (see map).



Doug Edwards (far right) and Robert Vandergon (middle), Fresno County Deputy and Assistant Agriculture Commissioners address questions from the public on glassy-winged sharpshooter and carbaryl application.

Spray Tank Samples

Samples were collected from the hose-end of a spray tank. Results show that the tanks were well mixed and the amount of carbaryl used was according to label and very consistent throughout the spray operation.

Concentration of carbaryl in tank samples, Fresno, Calif., 2000

Location	Date Sampled	Concentration (%)
E. Geary St.	6/27	0.15
W. Minarets Ave	7/12	0.13
W. Birch Ave.	7/21	0.13
E. Atchison Ave	7/25	0.11
E. Barstow Ave	8/8	0.10
W. Minarets Ave	8/22	0.13

Calculated theoretical tank concentrations at label rates from 1 to 4 teaspoons per gallon of water are 0.05 to 0.21 percent, respectively.

Leaf Samples

At each treatment site, 40 one-inch diameter leaf punch samples were taken one hour after application. Samples were analyzed for carbaryl dislodgeable-foliar residue. The concentrations were comparable to levels reported from 2.4 to 5.6 ug/cm² in citrus leaves for safe reentry at time of harvest. (Iwata et al. 1979. J. Agric Food Chem. 27:1141-1145)

Dislodgeable foliar residue of carbaryl in various leaf samples, Fresno, Calif. 2000

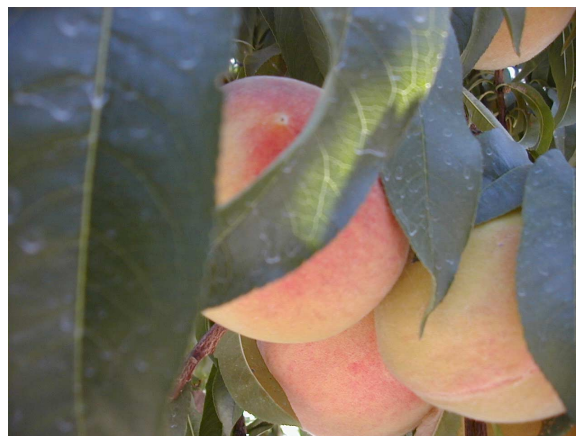
Location	Leaf Type	Carbaryl (ug/cm ²)
E. Geary St.	Plum, lemon, oleander, birch	4.76
W. Minarets Ave.	Grape, crape myrtle, plum	2.97
W. Minarets Ave	Grapes	5.16-5.29
W. Birch Ave.	Liquidamber, rose	2.97
E. Atchison Ave	Grapes	3.09
E. Barstow Ave	Waxleaf privet	3.73-7.12



A leaf punch taken from a citrus leave

Produce Samples

Backyard fruit and vegetable samples were collected after the required numbers of days had elapsed after carbaryl application. These preharvest intervals are crop specific and are listed on the carbaryl product label. The intervals ranged between 3 days for tomatoes and 7 days for grapes. All concentrations of carbaryl in produce sampled were well below the U.S. EPA established crop specific tolerances of 10 ppm (parts per million). The tolerances are enforceable maximum amount of pesticide residues allowed in crops and foods.



Fruit sample taken from a backyard peach tree

Concentration of carbaryl in produce sampled at preharvest interval in treatment area, Fresno, Calif. 2000.

Location	Produce	Concentration (ppm)
E. Geary St.	Plum	0.2
	Peach	0.15
	Lemon	ND
W. Minarets Ave	Plum	0.18
	Grape	ND
E. Atchinson Ave.	Plum	0.12
	Tomato	ND
	Nectarine	1.5
	Peach	ND
	Grapes	1.7

ND= none detected at the reliable detection level of 0.05 ppm.

U.S. EPA tolerances=10 ppm



Collecting air sample with a high-volume air sampler in a backyard in Fresno

Air Samples

Samples were taken at four intervals: minimum of 12 hours before application, the duration of application plus one hour (total of 1.5 to 4 hours), 24 hours after application, and another 24 hours.

All samples were collected using XAD-4 resin tube with high volume air sampler at 1,000 liters per minute or with personnel air sampler at 3 liters per minute. All concentrations were well below the DPR's preliminary acute (24-hour) health screening level of 6,313 ppt (parts per trillion).

Concentration of carbaryl in air before, during and after application in Fresno, Calif., 2000

Location	Date Sampled	Before Spray (ppt)	During Application (ppt)	Post Application 24 hours (ppt)	Post Application 48 hours (ppt)
E. Geary St.	6/27	ND	53	54	37
W. Minarets Ave	7/12	ND	ND	8	ND
W. Birch Ave.	7/12	ND	ND	ND	ND
E. Atchison Ave	7/25	ND	ND	24	10
E. Barstow Ave	8/8	NS	ND	10	6
W. Minarets	8/22	NS	237	41	16

ND= none detected reliable reporting level ranged 0.1 to 6 ppt.

NS= not sampled

We thank the homeowners for allowing us to take samples from their properties. We acknowledge the Center for Analytical Chemistry for samples analyses, and Department of Fish and Game for fish tissue analyses. The assistance of the staff of the Tulare County Agricultural Commissioners, the Department of Food and Agriculture and the applicators is much appreciated. This project was funded by the California Department of Food and Agriculture's glassy-winged sharpshooter project special appropriation.

The mention of commercial products in this report is not be construed as either an actual or implied endorsement of such product.

For a detailed report, study protocol and other updates, visit <http://www.cdpr.ca.gov/docs/gwss> or contact Kean S. Goh at (916) 324-4072 or email at kgoh@cdpr.ca.gov.

Carbaryl Monitoring Sites in the Glassy-winged Sharpshooter Treatment Areas, Fresno, Fresno County, Calif., 2000

0 1 2 3 4 Miles

